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ABSTRACT

The foundations, development, and delivery of distance education were examined through a literature review and first-hand experience in administration and teaching in an international online school. The evolution of distance education was traced from the 1800s, when it was a print-based method of instruction conducted at a distance, through the 1960s and 1970s, when advances in technology led to large-scale use of open broadcast technology in education and development of England's Open University. Special attention was paid to the development of computer-based teleconferencing and communication in the early 1980s and establishment of the Q-Link Tutoring Center and Community College, which began in 1986 as an online academic tutoring center and soon became the first nationally available real-time community education center in the United States. Recent developments in the areas of text-based, real-time teleconferencing through self-contained online networks and the Internet were highlighted, and the implications of other technological advances for the future of distance education were discussed. It was concluded that continued technological advancement and the tremendous demand from the global community for instruction through distance delivery systems are making it imperative that traditional institutions learn to apply technology for distance learning in an affordable way. (Contains 11 references.) (MN)

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Foundations of Distance Education

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Curriculum Vitae

Margaret Gorts Morabito is the Director and Founder of CALCampus, an international adult learning center available solely through the Internet. She has a Masters degree in education from Keene State College, New Hampshire and a Bachelors degree in English from the University of Miami, Florida. Ms. Morabito designed and developed CALCampus and has been its director and an English teacher in it since it first went online in 1986. Having been in the forefront in the development and application of online distance education, the author is able to relate to the field with an insider's viewpoint.

Table of Contents

I. Analysis

Need for this Study 1

Statement of Purpose 2

Methodology 2

Definitions 3

Expected Findings 6

II. Comparison

Print-Based Instruction 7

Expanding Technologies 9

Computer-Based Teleconferencing and Communication ... 11

III. Synthesis

The Future 13

Importance to Society 14

Professional Perspective 15

Conclusions 16

IV. Works Cited

Works Cited 17

I. Analysis

Need for this Study

This paper is a study of the foundations of distance education, including a focus on the developmental history, the underlying principles of distance education, and the various delivery systems used. A study of the foundations of distance education is necessary so that educators, students, and administrators can understand the reasons behind the development of current uses of distance education, appreciate its rich heritage, and realize that they are participating in and helping to define an essential tool for learning that has been in use for centuries.

Statement of Purpose

This paper will analyze the elements that led to the development of current programs used in distance education. This will be accomplished through studying its historical development, the reasons behind its existence, the various delivery systems used, and its growing place in the future of traditional and nontraditional educational institutions throughout the global community. In doing this, we will see that technology has had a significant impact on bringing the world's educational community together via distance learning, and we will see that there is occurring today a blending of delivery systems within both traditional and nontraditional institutions.

Methodology

This paper is a result of independent study and research. Conclusions are based upon a combination of learning from current and past educational studies, as well as from firsthand experience in administrating and teaching in an international online school, CALCampus (http://www.calcampus.com). Literature for this paper was located through Internet resources, including online library searches through the following sites: CARL System Library Catalogs (telnet://192.54.81.76) or (http://www.carl.org), and the ERIC Digest (gopher://gopher.ed.gov/11/programs/ERIC/searchs). CARL searches resulted in acquiring texts through traditional offline libraries, while ERIC searches

resulted in accessing articles in electronic form which were then printed for research and reference.

Definitions

Today, there are various terms associated with distance education and defining distance education is not a short task. When reading past and recent literature, one can see the changes in terminology while also seeing a similarity in definition. The following terms and phrases are defined for the purpose of seeing the common thread of meaning which has remained consistent through history and for understanding how the current definition developed.

Correspondence instruction is a method of instruction in which correspondence is the means of interactive communication between the student and the instructing institution. There are five components: prepared materials, written in self-explanatory fashing and arranged in a series of lessons; supplementary printed and other materials; a series of exercises to be worked out by the sudent; the evaluation of these exercises by a competent instruction; and a final examination for the course (MacKenzie, Christensen, and Rigby 4). A correspondence school is the educational institution that provides correspondence instruction.

Distance education is enrollment and study with an educational institution which provides lesson materials prepared in a sequential and logical order for study by a student on his or her own. The student mails or otherwise makes available to the school the assigned work for immediate

feedback by qualified teachers, thus providing a personalized student-teacher relationship. This is the definition provided by the Accrediting Commission of the Distance Education and Training Council's DETC Accrediting Overview (1). A second definition, which is more accurate in light of present day technology, states that distance education "takes place when a teacher and student(s) are separated by physical distance, and technology (i.e. voice, video, data, and print) is used to bridge the instructional gap" (Willis 4). The student who studies through distance education is a **distance learner** and uses **distance learning** as his method of receiving instruction. Often, the distance learner is an adult who for various reasons cannot physically attend a local school. Distance education provides a way for this student to continue studying throughout his life. Thus, we have the coined phrase, **lifelong learning**, which many distance educational institutions use in describing their schools.

Traditional education means enrollment and study within a physical building where students meet face-to-face with their teachers. Today, this definition is becoming outdated as nontraditional, distance education delivery systems start to infuse traditional institutions. A traditional educational institution is comprised of the buildings, study materials, and personnel associated with the education provided. The assumption is that the traditional student is one who physically attends school to receive instruction from those more knowledgeable. We see this definition changing today, too, as more traditional institutions provide distance learning options for their students.

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Nontraditional or alternative education has been defined simply as the "ways and means of getting an education or a degree without sitting in classrooms day after day, year after year" (Bear 9). A nontraditional or alternative educational institution is the central administrative location where communication and administration of programs are undertaken. This can be a physical building or a computer. Since the students do not physically place themselves at the institution, they are called **non-resident** or **off-campus students**. The assumption underlying nontraditional education is that the student is a self-motivated learner who identifies his own educational goals and actively pursues the knowledge that is needed to fulfill those goals. The nontraditional learner often does not need to learn from one more knowledgeable; but, instead uses various learning tools within his grasp to learn on his own. The definition of the non-resident student is changing today as we have distance learning schools which have realtime online campuses where students log in to receive instruction from their instructors in what is commonly called a **virtual classroom** or chat room.

Delivery systems are the tools used to provide instruction to students, whether they be in a traditional classroom or in a distance learning institution. The earliest traditional delivery systems relied on live lectures and seminars between the teacher and students, and later were supplemented by print materials which were physically distributed to the students. Nontraditional delivery systems also include the use of print materials, but they are delivered through mail or by electronic means to students at a distance. Today, there are many tools that are used to provide

instruction both within traditional and nontraditional education. They include a combination of e-mail, radio, television, telephone, modem, computer conferencing, the Internet, facsimile, among others.

Expected Findings

In the past, there has been a resistence to accept distance learning methods within traditional educational circles; however, today traditional educational institutions are acknowledging the validity of distance learning and are rushing to embrace its various methods of delivery to serve the growing demand from their students who cannot physically attend classes. We will see that distance education and correspondence instruction are no longer seen with skepticism by the traditional educational establishment. On the contrary, the educational establishment is now trying to catch up with the world's institutions that have already integrated distance education into their instructional systems. In the United States, in particular, the establishment has been slow to accept distance education and today is finally realizing its significance and its need. The proliferation of technology that utilizes electronic communications tools has brought correspondence instruction into the mainstream of educational delivery systems and has modified it in that interaction between the student and teacher is more immediate and in some cases instantaneous. We will see this trend continue into the future.

II. Comparison

Print-Based Instruction

The print-based method of instruction at a distance is basic to most educational institutions, both traditional and nontraditional. In "Telecommunications and Distance Education", Alexander Romiszowski categorizes distance education into four generations, the first being the print-based model (1).

Contrary to popular assumption, distance education is not a new phenomenon in the educational world and it has been in existence for centuries. In fact, with regard to using printed materials for learning at a distance, one could say that as early as the days of Moses, this first generation of distance education was in use when Moses wrote down the ten commandments (in stone instead of on paper) for people at a distance to read and learn from. Stone was replaced in the 15th century by the printed word as we know it today, thanks to Gutenberg's printing press, and education through printed materials became a major delivery system within educational institutions (Chasse 12-13).

Although we can see the seeds of distance education back in the early days of recorded civilization, they did not take root on a large level until the 1800s and early 1900s when adult education began to flourish throughout the world. This was a result of several factors. The growth of the Industrial Revolution created a situation where many adults were moving from the rural areas into the cities where jobs could be found. Also, there was a big influx of immigrants into the United States who needed education. These adults needed to learn new job skills and they needed to expand their learning to become informed voters (Compton's Interactive Encyclopedia). In the United States, between 1841 and 1851, the Westward Movement was underway, and as the

settlers moved into the frontier, they needed a way to continue their educations. New approaches were developed, and by the mid-1800s, a new educational system was growing, one which was based on nontraditional methods of learning.

Europe, too, was inventing new methods of providing education to those students who could not attend traditional schools. In 1850, William Sewell of Exeter College, discussed the new "extension system" in England which was basically a non-resident program of education. Several years later, a French teacher and a German writer started the Toussaint-Langenscheidt Correspondence School (MacKenzie, Christensen, and Rigby 24). These were the European roots of correspondence learning.

By 1873, Anna Eliot Ticknor, of Boston, Massachusetts, had developed the Society to Encourage Studies at Home, a private correspondence school based on mailing letters back and forth between the student and teacher every month, in combination with guided readings and frequent tests. This became a basic method for future correspondence instruction. In the same year, the first university in the United States to offer degrees through correspondence instruction began offering courses. This was Illinois Wesleyan University, a Methodist school that offered non-resident courses to prepare students for taking university exams for credit, leading to a Bachelors, Masters, or PhD degree (MacKenzie, Christensen, and Rigby 26).

In 1881, William Rainey Harper began offering Hebrew courses through correspondence study at the Baptist Theological Seminary in Illinois. He developed the same program at Chautauqua University and later implemented the University of Chicago's Extension Division, whose goal was "service, not restricted to the students in its classrooms, but extended to all classes" (MacKenzie, Christensen, and Rigby 28). Religious schools played a major role

in the history of distance education, and today, one can see that religious universities have been in the forefront of providing distance learning to their students. A quick search on the Internet will locate many of these.

It was not only postsecondary institutions that experienced the growth of correspondence instruction. As a result of the 1890 state law mandating compulsory school attendance in the United States, correspondence schools became involved in secondary education. In 1923, Sidney Mitchell, the superintendent of schools in Benton Harbor, Michigan, integrated correspondence instruction into the high schools by contracting with private correspondence schools to provide vocational courses. This was the basis of "supervised correspondence instruction", in which a designated guidance teacher from within the traditional school would oversee the progress of resident students who were taking correspondence courses (MacKenzie, Christensen, and Rigby 32). The plan succeeded due to its economical and practical application, and other high schools implemented similar plans.

There are many more examples from history of the growth of distance education throughout the world in the late 1800s and early 1900s. These were based on the print-based method of instructional delivery, and the most successful programs were supported by regular correspondence with a teacher or advisor.

Expanding Technologies

Since the 1960s, technology has played a crucial role in the rapid development and changes in distance education. This is illustrated by large scale use of open broadcast technology, such as radio and television, as

delivery systems for instruction. Lessons provided over the radio and on television were supported by print-based materials. These are still in use in the 1990s throughout the world.

In the 1970s, England started the Open University, which was tailored to distance learning adults. The objective of the university is to bring "teaching to adult students in their own homes" (http://www.www.open.ac.uk/OU/Intro/History.html). The Open University began by offering instruction through the radio and on television, supplemented with print-based materials, videos, audiocassettes, and access to tutors. As technology advanced, the Open University added the ability for learners to use computers, software, and the Internet to receive instruction and communicate with their tutors.

Both within traditional and nontraditional schools, educators realized the potential for audio and video technology in delivering instruction. Some of the technological tools in use since the 1960s include laser disks, standard film projectors, low-power television, closed-circuit television, instructional fixed television service, cable television, CD-ROM, audiographic teleconferencing, slow scan video, and compressed video (Schamber 1-2). Many of these were too complicated and expensive for small school systems and the general public to utilize. In the 1970s and 1980s, however, the use of low-cost video cassette recorders and facsimile machines also came into popular use. Fax machines provided a way for the quick transmission of print-based materials between remote locations through telephone lines while video cassettes allowed students to watch and listen to teacher-prepared lessons or educational movies and documentaries on television. Distance educators have also relied on voice communication through standard telephone lines, as well

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as telephone voice conferencing. When investigating distance learning institutions, one can find a great variety of tools used.

Throughout the 1970s and 1980s, many other distance learning institutions formed adult learning programs, using these and other methods of delivering instruction, mostly based on a combination of print, video, and audio technology. By 1974, John Bear began publishing his series of books about alternative education programs in response to a growing demand from the adult population to learn about alternative ways of earning a college degree and continuing their education (Bear).

Computer-Based Teleconferencing and Communication

In the early 1980s, personal computers became affordable and available to the public. As a result of this, computerized, affordable, easy-to-use telecommunications-based teleconferencing became available for public use. Romiszowski refers to this as the fourth generation in distance education, in which there is an integrated use of remote study materials supported by computer-based multimedia teleconferencing (2). We see this used frequently in the 1990s within nontraditional educational institutions.

In early 1986 in the United States, the author of this paper, Margaret Morabito, founded and operated the first nationally available realtime community education center, the Q-Link Tutoring Center and Community College, which was located on the QuantumLink online network for Commodore 64 users. The school began as an online academic tutoring center and soon after began offering courses to adults and high school students using realtime online

conferencing which relied on typed communication or videotext. Live instruction was supplemented with instructional materials that were placed in computerized form into online libraries for downloading by the student. Computerized message boards were provided so that the student could communicate with the teacher and other students in between live online classroom sessions. This was a changing point in the history of distance education because no longer was the home-based student separated from live interaction with the distant teacher and classmates (Morabito 12).

Today, text-based realtime computer-based teleconferencing is readily available to the public, both through self-contained online networks and through the Internet. Teleconferencing has expanded to include the use of realtime graphics and sound. Online teachers and students are able to draw and write on a computerized blackboard and they are able to hear and send audio messages. This does not have to be expensive for a small school, and can be accomplished inexpensively through the use of what has been called bulletin board software, today referred to as client-server software. The server is connected to the Internet, which allows students and teachers from around the world to log on from their local site to attend live online classes or virtual classroom sessions without having to pay long distance telephone charges.

III. Synthesis

The Future

Distance education delivery systems are almost limitless from a technological standpoint. Technology is expanding at a rapid rate and, combined with the public availability of the Internet, global communication is second nature. Through combined use of e-mail, computer-based teleconferencing, and the ability to download course materials from a remote server onto one's personal computer for printing and offline study, distance education today is easily within reach of millions of students from around the world who can participate from the convenient location of their homes or offices. By combining this with the use of computerized voice recognition software that is already commonly available for personal computers, the visually impaired and deaf can also participate freely in computer-based distance education. By tomorrow, there will be millions more participating in distance education and it will be widely incorporated into traditional educational institutions.

There is no doubt that the use of high quality realtime video technology, combined with voice communication will be at the forefront of distance delivery system development in the future. The goal will be to provide this in an affordable and widespread way, such as we currently have achieved through computer-based telecommunications implemented on low-cost personal computers and remote client-servers. When this is achieved, distance education will essentially duplicate traditional instructional methods, but it will be able to better provide supplemental instructional materials that are commonly available online either through public access Internet libraries or through private online school libraries.

Importance to Society

There is a tremendous demand from the global community for instruction through distance delivery systems. Everyday in my work as Director of CALCampus, an international online learning center, I get requests from students from around the world asking about the availability of particular courses or certificate programs through distance education. The Internet has made this possible by opening up an avenue for communication between one country and another. On a national level, I often get inquiries from United States residents who come from traditional schools, asking about how to earn a college degree or a high school diploma through distance education. This information is not yet being distributed to students and the community through traditional educational institutions.

The established educational community is at a point where it must meet the needs of society. To do this, it must acknowledge the public's demand and learn how to smartly select appropriate and affordable technology that is readily available to the public for distance education. The public is ready, willing, and able to participate in this kind of instructional delivery, but it must be provided in a way that is accessible and affordable. It will do no good for traditional schools to develop distance learning systems based on expensive and exotic technology that is not available to the public and that is difficult to understand and use by teachers and students. All that will accomplish is to raise taxes, frustrate good teachers, and make distance education unaffordable for prospective students.

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Professional Perspective

Many traditional educational institutions are realizing the demand from the public and are currently trying to open distance learning divisions. This is a difficult task because many of the leading innovators in distance education do not work within traditional educational institutions. This unnecessarily forces the traditional institutions to reinvent the wheel, thus slowing down their production and development of distance learning systems. Educational administrators would be wise to look at the global educational community and learn from many innovative and affordable programs already in existence within the nontraditional educational community. Simply throwing government money at the problem will not create a valid distance learning program.

The educational system is based on public demand, and it is crucial that traditional institutions learn how to apply technology for distance learning in an affordable way. As the public realizes that nontraditional schools are in the forefront of providing affordable distance learning opportunities, they will place even greater demands on traditional schools to provide similar learning opportunities. This in turn will motivate traditional schools to provide distance learning opportunities, and the lines between traditional and nontraditional education will continue to disappear. The differences between the two are already blurring as traditional schools look more like nontraditional schools and nontraditional schools are accepted by traditional students. The end result is a much greater educational opportunity for the entire global community.

Conclusion

There is no end to the development of distance education. We can see from history that there were always learners who for whatever reason could not physically attend local schools. As our local societies turn into global communities and nationalistic barriers fade, there is a new global student body which inherently requires the use of distance education for learning. This not a futuristic possibility; this is a present day fact and educators throughout the world need to move ahead in providing educational opportunities through the use of distance learning to this steadily growing student body.

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